

# **GPATS Regional Emissions Analysis**

**for the Greenville County Early Action Compact**

**Greenville-Pickens Area Transportation Study  
October 2005**



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## **Executive Summary**

This report demonstrates that the Greenville-Pickens Area Transportation Study (GPATS) Metropolitan Planning Organization (MPO) Long-range Transportation Plan (LRTP) eliminates or reduces violations of the national ambient air quality standards (NAAQS) in the MPO portion of Greenville County South Carolina as well as parts of Anderson and Spartanburg Counties. The LRTP accomplishes the intent of the South Carolina Early Action Compact (EAC) State Implementation Plan (SIP). GPATS MPO bases its regional emissions analysis on the transportation network approved by GPATS for the 2025 Transportation Plan and the emission factors developed by the South Carolina Department of Health and Environmental Control (SCDHEC).

USEPA designated Greenville County South Carolina as a basic nonattainment area for ozone (O<sub>3</sub>) under Subpart 1 of the Clean Air Act on April 15, 2004. The effective date of designation is deferred while South Carolina complies with the EAC.

The plan is fiscally constrained and identifies funding sources to the extent possible. SCDHEC prepared base and future emission rates for the vehicle fleet using Mobile 6.2. These rates were applied to VMT from the GPATS travel demand model to estimate emissions.

## Introduction

This report documents the regional emissions reduction test, interagency consultation process, public involvement process, and analysis methodology for the emissions analysis completed for the GPATS MPO as part of the Early Action Compact implementation activities.

## Regional Emissions Reduction Test

Table 1 shows the results of the baseline test and Table 2 shows the results of the build/no-build test. Both are represented in tons per day (tpd).

**Table 1: Baseline Test Emissions**

Year	NO <sub>x</sub> (tpd)	VOC (tpd)
2000	31.148	20.850
2002	30.213	19.276
2007	21.580	13.648
2025	6.792	7.269

**Table 2: Build/No Build Test**

Precursor	NO <sub>x</sub> (tpd)		VOC (tpd)	
Year	No Build	Build	No Build	Build
2025	6.844	6.792	7.278	7.269

The emissions in each functional classification are calculated using the formula:

$$Emissions_{FC} = DVMT_{FC} \times EmissionsFactor_{FC}$$

Where:

Emissions<sub>FC</sub> are the emissions in each functional classification,

DVMT is the Daily VMT in each functional classification, and

EmissionsFactor<sub>FC</sub> is the emissions factor for that functional classification. Emission Factors may be for either NO<sub>x</sub> or VOC.

Daily emissions for each scenario are calculated by summing daily emissions across functional classes (in this case Interstates, Freeways, Principal Arterials, Minor Arterials, Collectors and Locals).

Appendix A contains the emission calculation spreadsheets showing the VMT and speed for each functional classification and each scenario.

## Scope

The Travel Model covers Greenville County and the portions of Spartanburg County and Laurens County within the GPATS MPO. All projects in the Long Range Transportation Plan within the modeled area are included in the Regional Model.

## The Travel Demand Model

The South Carolina Department of Transportation provided transportation modeling support to GPATS for the regional emissions analysis. The GPATS travel demand model is a TRANPLAN-based travel demand model that includes the trip generation, trip distribution, and traffic assignment steps of the travel demand modeling process. The model uses the gravity model for trip distribution and the equilibrium trip assignment algorithm to assign traffic. The model does not include feedback loops from traffic assignment to either trip generation or trip distribution.

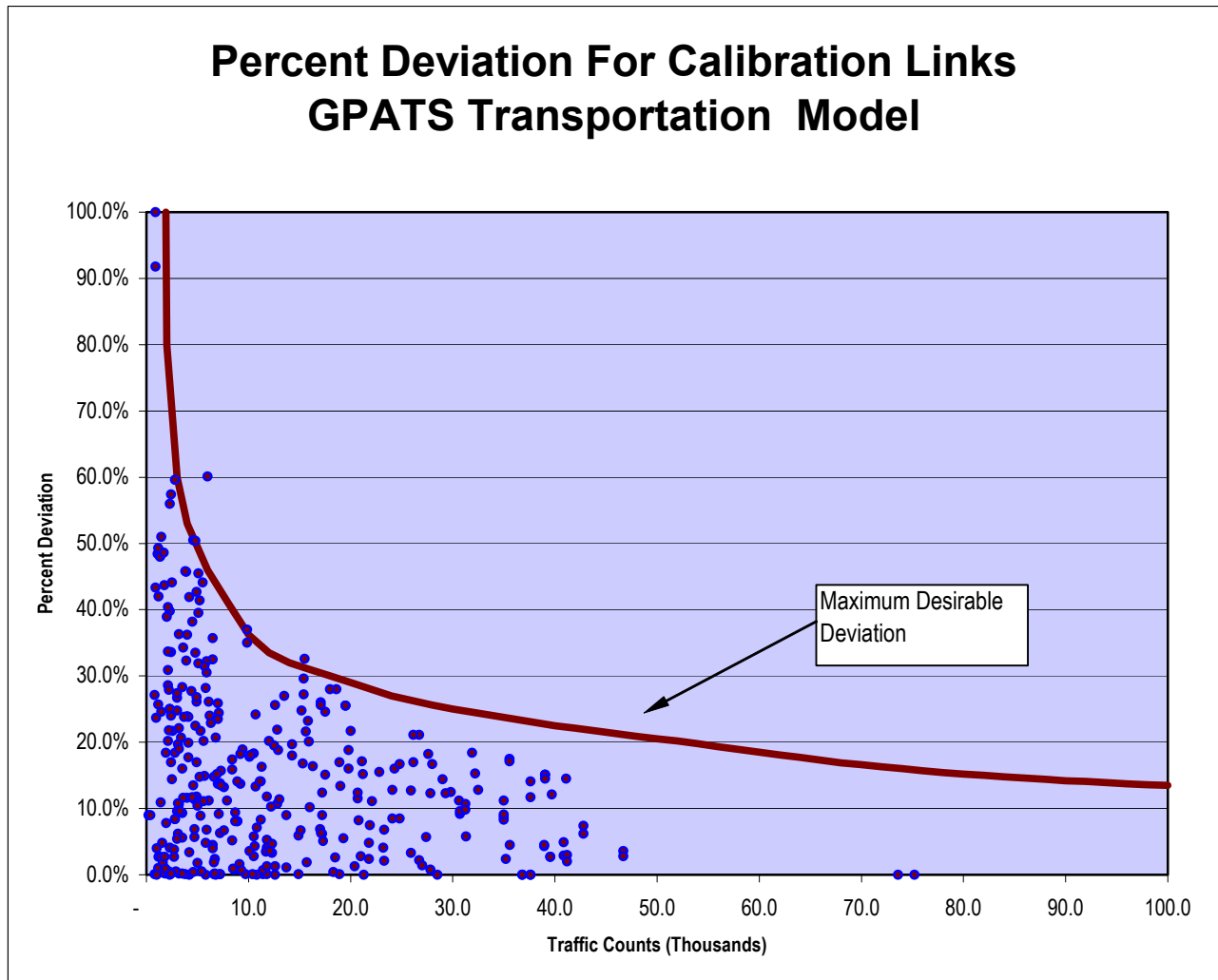
GPATS/SCDOT last validated the model against ground counts in 2000. For the regional emissions analysis GPATS and SCDOT developed socioeconomic data for 2002 and 2007 by interpolation. The base year 2000 data and horizon year 2025 forecast for each traffic analysis zone (TAZ) were used as the endpoints for a linear interpolation of each variable in each TAZ, and socioeconomic datasets were produced for 2002 and 2007. These datasets were then used in the trip generation step of the model.

Build and No-Build highway networks for the plan horizon year and for the 2002 and 2007 analysis years were also created. Table 3 shows the model calibration summary for the GPATS model. A more complete discussion of the travel demand model is included in the GPATS Long-Range Transportation Plan report.

**Table 3: Model Calibration Statistics**

Sub-Area	2000 Traffic Count	Assigned Volume	Ratio
North	334,300	322,957	.966
Southwest	667,500	690,429	1.034
Southeast	1,178,650	1,195,588	1.010
Greer	1,298,800	1,287,240	.990
Greenville/CBD	667,950	691,400	1.035
<b>TOTAL</b>	<b>4,520,300</b>	<b>4,560,710</b>	<b>1.009</b>

Figure 1 illustrates the calibration results of the GPATS model by graphing the percent deviation of assigned traffic volumes to actual traffic counts for each of the 358 count stations used for model validation. As indicated by the graph, the percent deviation for nearly all count locations is below the curve of maximum desirable deviation as defined in the National Cooperative Highway Research Program (NCHRP) 255 Report. The few counts that lie on or above the curve are on relatively low-volume roadways.



**Figure 1: Percent Deviation for Calibration Links**

### ***The Emissions Model***

The South Carolina Department of Health and Environmental Control (SCDHEC) performed emissions modeling using EPA's latest emissions model, MOBILE6.2. The SCDHEC developed MOBILE 6.2 input files using a mix of national default data and locally collected data. The primary Mobile 6.2 local input parameters for this report include:

1. Minimum/maximum temperatures (72, 92).
2. Fuel Reid Vapor Pressure (9.0 psi).
3. No refueling.  
Emissions that occur during refueling are excluded from the emission estimates.
4. Average speed.
5. Vehicle Miles Traveled by Facility.

Appendix D includes the MOBILE 6.2 files.

## Air Quality Planning

USEPA declared Greenville County, South Carolina basic nonattainment for ozone under Subpart 1 of the Clean Air Act on April 15, 2004. The effective date of designation is deferred while South Carolina complies with the EAC. Figure 2 at right shows the Greenville County ozone nonattainment area.

Greenville County joined SCDHEC in an EAC SIP to demonstrate a reduction of air pollutants without the prescriptive requirements of a non-attainment SIP. The EAC includes a plan for reducing ozone precursors to a level that demonstrates compliance with the NAAQS by December 31, 2007, and maintains the standard through 2017.

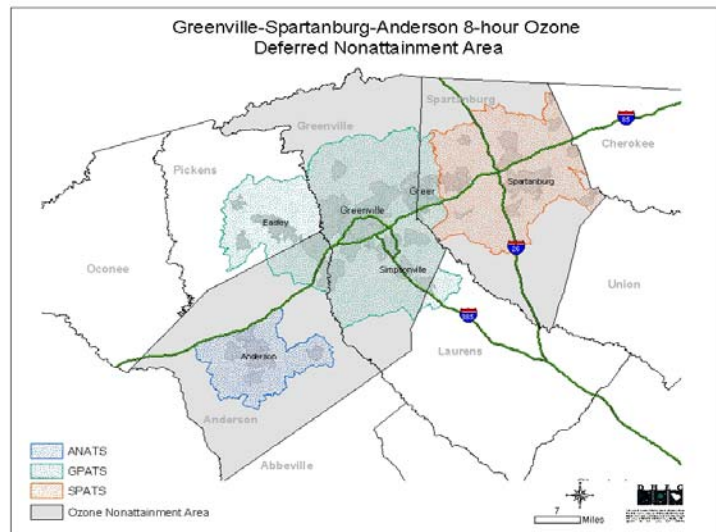


Figure 2: Ozone nonattainment area

SCDHEC and SCDOT, in consultation with EPA, FHWA, and FTA, developed a "Smart Highways" approach to estimating on-road mobile source emissions. This Smart Highways report for the GPATS MPO was produced by SCDOT and SCDHEC in coordination with GPATS staff.

## Transportation Planning

The 2025 Long Range Transportation Plan for GPATS is an update of the previous long-range transportation plan. The socioeconomic data and fiscal constraint elements of this LRTP include forecasts to the Design Year 2025.

### ***Financial Constraint***

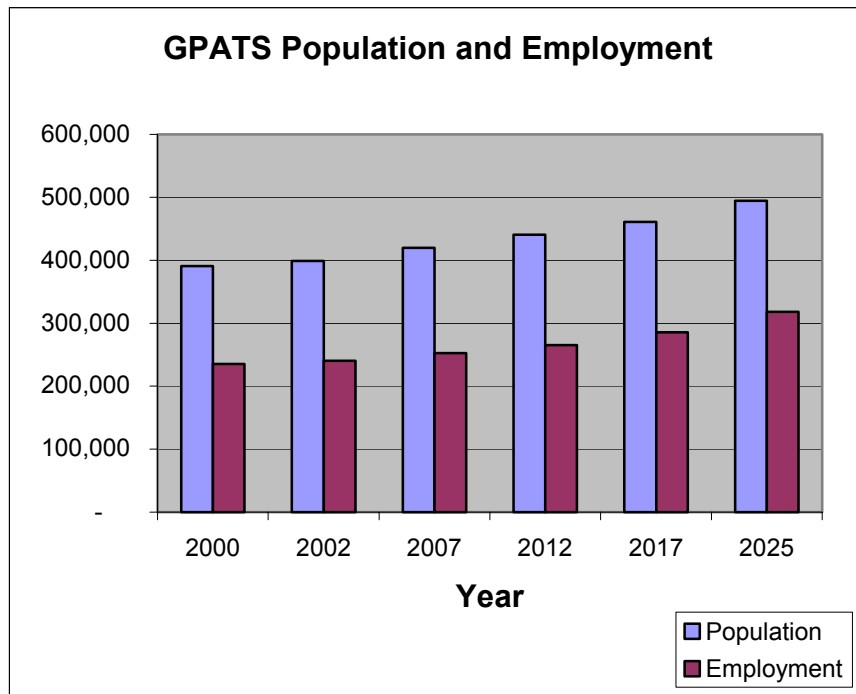
The GPATS fiscally constrained Long-Range Transportation Plan is based on historic and anticipated funding availability. Within the plan, GPATS has identified funding sources, and associated them with projects to the extent possible. In addition, debt service associated with a large bond issue in the late 1990s has been included in estimating future funding streams. Between now and 2025 the expected funding stream is approximately \$9.7 million per year. After accounting for debt service the total funding estimate is \$122 million by 2025. The transportation improvements planned with this funding are described in Appendix B of this report and in the 2025 Long Range Transportation Plan.

### ***Latest Planning Assumptions***

GPATS developed its 2025 long-range transportation plan with the latest planning assumptions. Population and employment were developed using a step down method to develop regional control totals and then distributing population and employment by classification to individual traffic analysis zones. GPATS staff consulted with a wide range of stakeholders and state and local officials to assist in developing the control totals and the intensity of development in each traffic



analysis zone. Latest planning assumptions were used for land use. Figure 3 summarizes the population and employment data for each horizon year of the travel demand model.



**Figure 3: Population and Employment**

### ***Interagency Consultation***

The documentation in this report was the subject of interagency consultation. Interagency consultation began in January 2003 and continued through completion of the Smart Highways emissions analysis with regular meetings to discuss and agree upon schedules, model parameters, latest planning assumptions, horizon years, exempt projects, and regionally significant projects. Copies of notes from these meetings are included in Appendix C of this report.

### ***Public Involvement***

GPATS conducted public review of this 2025 Long Range Transportation Plan report in accordance with the MPO's public involvement policy. A key element of the public involvement process is a public review of transportation planning documents including the Long-Range Transportation Plan.

## **Conclusion**

Based on the analysis and consultation discussed above the emissions expected from implementing the proposed 2025 GPATS long-range transportation plan are less than emissions from either the baseline case or the no build case.

## Appendix A: Emission Calculation Spreadsheets

**Table 1: Summary Table Less Than Base Line Test**

Year	NO <sub>x</sub>	VOC
2000	31.148	20.850
2002	30.213	19.276
2007	21.580	13.648
2025	6.792	7.269

**Table 2: No Build/Build Summary Table**

NO <sub>x</sub>		VOC	
Year	No Build	Build	No Build
2025	6.844	6.792	7.278
			7.269

**Table 3: 2002 Baseline Emission Calculation**

	Speed (mph)	DVMT	NO <sub>x</sub> EF (g/mi)	NO <sub>x</sub> (tpd)	VOC EF (g/mi)	VOC (tpd)
Interstate (Freeway)	52.47	2,677,693.2	2.964	8.746	1.398	4.125
Expressway (Freeway)	51.02	55,938.8	2.913	0.180	1.409	0.087
Ramps	24.10	115,167.3		-		-
Princ Art Divided	43.38	790,035.2	2.448	0.180	1.468	1.278
Princ Art Undivided	38.55	1,634,662.6	2.384	0.180	1.517	2.733
Minor Art Divided	27.20	71,419.1	2.427	0.191	1.723	0.136
Minor Art Undivided	35.68	2,363,020.0	2.361	6.148	1.551	4.039
Collector	34.09	2,084,120.9	2.360	5.420	1.576	3.620
Local	15.90	1,147,448.2	2.453	3.102	2.577	3.259
<b>Daily Total NO<sub>x</sub></b>				<b>30.213</b>	<b>Daily Total VOC</b>	<b>19.276</b>

**Table 4: 2007 Emission Calculation**

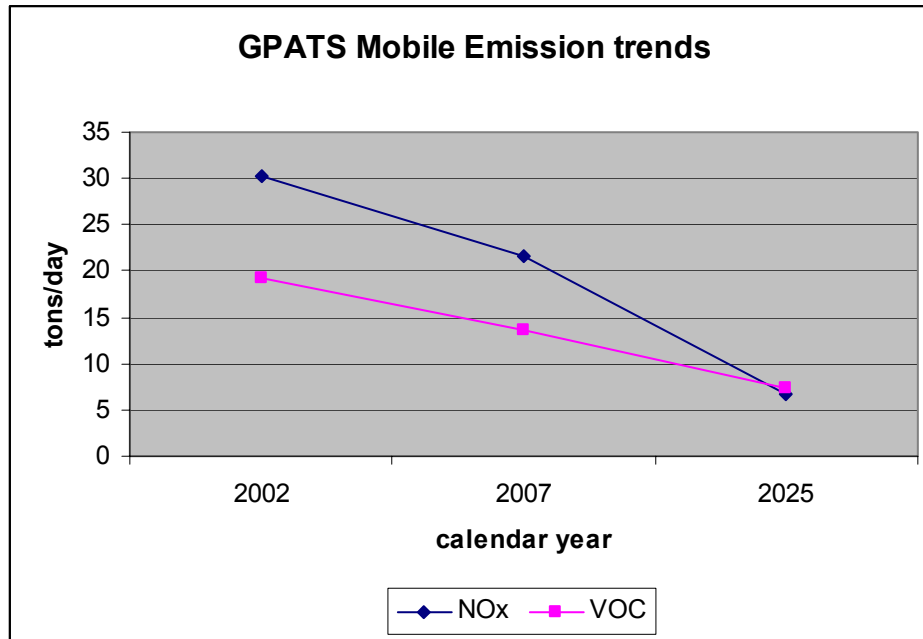
	Speed (mph)	DVMT	NO <sub>x</sub> EF (g/mi)	NO <sub>x</sub> (tpd)	VOC EF (g/mi)	VOC (tpd)
Interstate (Freeway)	49.55	2,968,281	1.805	5.904	0.896	2.931
Expressway (Freeway)	50.38	58,737.1	1.828	0.118	0.891	0.058
Ramps	19.95	127,709.4				
Princ Art Divided	43.23	825,366.6	1.603	1.458	0.932	0.848
Princ Art Undivided	38.70	1,734,498	1.559	2.980	0.963	1.841
Minor Art Divided	32.62	174,764.6	1.546	0.298	1.019	0.196
Minor Art Undivided	33.96	2,646,242	1.541	4.494	1.003	2.925
Collector	32.41	2,345,146	1.547	3.998	1.021	2.639
Local	15.88	1,250,339	1.691	2.330	1.605	2.211
<b>Daily Total NO<sub>x</sub></b>				<b>21.580</b>	<b>Daily Total VOC</b>	<b>13.648</b>

**Table 5: Build/No-Build Analysis for NO<sub>x</sub>**

2025 NO <sub>x</sub> Emissions								
Functional Classification	Speed (mph)	No Build			Speed (mph)	Build		
		DVMT	NO <sub>x</sub> EF (g/mi)	No Build NO <sub>x</sub> (tpd)		DVMT	NO <sub>x</sub> EF (g/mi)	Build NO <sub>x</sub> (tpd)
Interstate (Freeway)	41.82	4,178,628.0	0.382	1.759	40.43	3,896,419.0	0.380	0.632
Expressway (Freeway)	47.45	74,009.2	0.395	0.032	45.33	80,581.5	0.390	0.035
Ramps	18.60	191,357.7		-	18.40	176,106.1		-
Princ Art Divided	38.60	1,144,065.0	0.373	0.470	38.45	1,143,497.0	0.372	0.469
Princ Art Undivided	34.23	2,254,970.0	0.370	0.919	32.94	2,323,029.0	0.371	0.950
Minor Art Divided	28.63	195,183.9	0.379	0.082	29.22	197,084.3	0.377	0.082
Minor Art Undivided	26.91	3,408,000.0	0.384	1.442	27.14	3,422,375.0	0.383	1.444
Collector	25.32	3,318,048.0	0.389	1.422	26.00	3,434,946.0	0.387	1.465
Local	15.72	1,630,348.0	0.399	0.717	15.72	1,627,173.0	0.399	0.715
Total NO <sub>x</sub>				6.844	Total NO <sub>x</sub> 6.792			

**Table 6: Build/No Build Analysis for VOC**

2025 VOC Emissions								
Functional Classification	Speed (mph)	No Build			Speed (mph)	Build		
		DVMT	VOC EF (g/mi)	No Build VOC (tpd)		DVMT	VOC EF (g/mi)	Build VOC (tpd)
Interstate (Freeway)	41.82	4,178,628.0	0.349	1.607	40.43	3,896,419.0	0.353	1.516
Expressway (Freeway)	47.45	74,009.2	0.337	0.027	45.33	80,581.5	0.341	0.030
Ramps	18.60	191,357.7		-	18.40	176,106.1		-
Princ Art Divided	38.60	1,144,065.0	0.357	0.450	38.45	1,143,497.0	0.357	0.450
Princ Art Undivided	34.23	2,254,970.0	0.371	0.922	32.94	2,323,029.0	0.376	0.963
Minor Art Divided	28.63	195,183.9	0.398	0.086	29.22	197,084.3	0.395	0.086
Minor Art Undivided	26.91	3,408,000.0	0.408	1.532	27.14	3,422,375.0	0.407	1.535
Collector	25.32	3,318,048.0	0.418	1.528	26.00	3,434,946.0	0.414	1.567
Local	15.72	1,630,348.0	0.626	1.125	15.72	1,627,173.0	0.626	1.123
Total VOC				7.278	Total VOC 7.269			



## Appendix B: Project Description Table

Projects Under Construction or Programmed in TIP		
ID	Project and Description	Travel Model Network Status
1	SC 153 EXT- New Roadway from US 123 to SC 183	Outside of Nonattainment Area
2	US 123/SC8/SC 135 Intersection- Widen SC 135 and Ramp Improvements for US 123	Outside of Nonattainment Area
3	SC 81 (Powdersville)- Widen to 5 Lanes from North of SC 153 to South of Circle Road (Near S-52)	Outside of Nonattainment Area
4	US 25- From Gordon Road to Saluda Dam Road*	2007
5	SC 20- From US 25 to Southern Connector*	2007
6	Western Corridor (All 3 Segments)- From Near SC 253 to Near SC 123	2007
7	Stone Avenue Extention	2007
8	I-385- From I-85 to Stone Avenue*	2007
9	Woodruff Road (Segment 1)- From Laurens Road to Verdae Boulevard	2007
10	Verdin Road- At East Butler Road	2007
11	SC 14 (Phase 3)- From Woodruff Road to SC 417*	2007
12	SC 14- From I-85 to Greer City Limits	2007
13	J. Verne Smith Parkway (Phase 2)	2007

\* SIB Project

Long Range Plan Projects*		
ID	Project and Description	
1	SC 183- From SC 135 to Saluda River	Outside of Nonattainment Area
2	Stone Avenue- From East Park Avenue to Rutherford Street	2025
3	SC 86- Widen to 3/5 Lanes From US 25 to SC 20	2025
4	Fork Shoals Road- Widen to 3 Lanes From Ashmore Bridge Road to Old Augusta Road	2025
5	Fork Shoals Road- Widen to 3 Lanes From Log Shoals Road to Ashmore Bridge Road	2025

6	West Georgia Road- Widen to 5 Lanes from Neely Ferry Road to Fork Shoals Road	2025
7	Harrison Bridge Road- Widen to 5 Lanes From I-385 to Fairview Road	2012
8	Scuffletown Road- Widen to 3 Lanes from Woodruff Road to Jonesville Road	2025
9	Batesville Road- Widen to 3 Lanes From SC 14 to Woodruff Road	2025
10	Roper Mountain Road- Widen to 3 Lanes From SC 14 to Godfrey Road	2025
11	I-85- Add Storage Lane From Woodruff Road to Pelham Road	2025
12	Roper Mountain Road- Widen to 3 Lanes From Garlington Road to SC 14	2025
13	Roper Mountain Road- Widen to 3 Lanes From Roper Mountain Road Ext. to Garlington Road	2025
14	Laurens Road- Widen to true 5 lanes From I-85 to Fairforest Way	2025
15	Garlington Road- Widen to 3 Lanes From Woodruff Road to Roper Mtn Road	2025
16	Woodruff Road- Intersections From Verdae Boulevard to I-85	2025

Completed Projects		
ID	Project and Description	
1	SC 291 at State Park Road- Intersection Realignment	2002
2	Congaree Road- From Woods Crossing to Roper Mountain Road	2007
3	Woodruff Road- From I-385 to SC 14	2007
4	Fairview Road- From I-385 to Harrison Bridge Road	2007
5	SC 14 (Segment 2)- From Pelham Road to Woodruff Road*	2007
6	Batesville Road- From Old Spartanburg Road to Coleman Road	2007
7	Brushy Creek Road- From Old Spartanburg Road to Taylors Road	2007

\* SIB Project

## **Appendix C: Interagency Consultation Meeting Minutes and Agency Comments**

### **Smart Highways Workgroup Updates**

**January 27, 2003** – Initial meeting held between EPA, FHWA, DOT, and DHEC. DOT and FHWA are to work out involving the MPOs. Group feels it will be beneficial to implement some conformity type processes (lack of better word) – and formed a workgroup. The workgroup held a conference call – DOT is putting together some information concerning the technical process and will submit it for review.

**February 10, 2003** – Workgroup has been getting input from the counties and the MPOs about the process.

**March 3, 2003** – John Gardner with DOT has some ideas out for starting points. Group has reviewed and will discuss during the next conference call.

**March 17, 2003** – Group decided that approach is a good idea. John Gardner and Dan Hinton are going to evaluate the conformity checklist for items that can be pulled for approach. John is also going to check for an inventory of what VMT information is available. Tonya, Melinda and Henry are drafting the process for the agencies to follow based on priority given to non-attainment areas to include a “what if” approach. Lynorae had some comments from EPA that she is going to provide in the next day or so. All of these deliverables are to be completed by March 21<sup>st</sup>. After everyone has reviewed, we will set up another conference call.

**March 24, 2003** – Waiting on John Gardner and Dan Hinton to evaluate the conformity checklist for items that can be pulled for approach. Also waiting on John to check for an inventory of what VMT information is available. We (DHEC) have drafted and sent out to the rest of the group a process for the agencies to follow based on priority given to non-attainment areas to include a “what if” approach. After everyone has reviewed, we will set up another conference call to discuss.

**April 7, 2003** – Discussed proposals and checklist developed by participants. Lynorae Benjamin (EPA) was unable to participate on call, which limited some of the discussion, but we have since caught up via individual phone messages. John Gardner (DOT) will be drafting a plan from the DOT perspective for the group to be delivered in two weeks.

**April 14, 2003** – Awaiting a draft plan from John Gardner at DOT.

**May 27, 2003** – The Southern Environmental Law Center is very interested in participating in this approach and has submitted a letter with their concerns. Several of the MPOs have also expressed an interest in being involved as well. Once John has completed draft, we will reconvene and will certainly welcome the additional stakeholders.

**August 18, 2003** – John Gardner has provided transportation plans from several MPOs to potentially be used as a guide.

**August 25, 2003** – John will send a smart highways checklist around to folks by next week. Lynorae will develop a “flowchart”, to include “what ifs”. She will send it out by September 5<sup>th</sup>. The group will review the documents and get back together on September 10<sup>th</sup> for another call.

**September 1, 2003** – A conference call will be held on Wednesday, September 10<sup>th</sup>.

**September 8, 2003** – The group is currently awaiting the review of the \*GRATS long-range transportation document. We plan to possibly meet on October 8<sup>th</sup> for our next discussion. (\*GRATS will be referred to later as GPATS due to changes in their organizational boundary)

**January 30, 2004** – A meeting is scheduled for February 12<sup>th</sup> here in Columbia. We will discuss the conformity process and develop a Smart Highways approach.

**February 27, 2004** – There was representation by DHEC, EPA, MPOs, FHWA, and DOT during the meeting held February 12<sup>th</sup>. There were several presentations at the meeting and we discussed the conformity process and the Smart Highways approach.

**August 27, 2004** – FHWA sent out checklist to group and a conference call was held with DOT, FHWA, EPA, and MPOs on September 2<sup>nd</sup> to finalize checklist. Sent out new version of checklist today. Inter-agency partners will have upper management review. Plan is to share with Southern Environmental Law Center in the next couple of weeks for their comments. Additionally, DHEC has drafted language addressing the checklist to be placed in the EAC SIP.

**September 30, 2004** – Awaiting comments from SELC.

**October 29, 2004** – Finalized and out on public comment with the rest of EAC stuff.

**January 31, 2005** – Meeting to discuss status and make preparations for EAC obligations.

**February 25, 2005** – Awaiting submittal of VMT and speed data from the 4 MPOs. It is due March 16<sup>th</sup>.

**March 31, 2005** – We have received VMT and speed data from GPATS, ANATS, and COATS. That data will be placed into Mobile 6 so that an emissions analysis can be completed. We are still awaiting SPATS.

**April 29, 2005** – We have received VMT and speed data from all the MPOs and are completing Mobile 6 baseline analysis.



**May 31, 2005** – The Smart Highways analyses were completed. Currently, the MPOs, DOT, and DHEC are writing up the associated reports.

**June 30, 2005** – June 27<sup>th</sup> we sent reports rewrites to DOT. On July 7<sup>th</sup> we met with DOT and the MPOs to answer questions about the report. Our target completion date for the reports is August 1<sup>st</sup>.

**July 29, 2005** – We are still finalizing the assessment documents for each area.

**August 31, 2005** – Have made some changes to the Smart Highways Reports. Awaiting feedback from COATS.

**September 29, 2005** – DHEC completed review of reports and redistributed them as final drafts.

## Appendix D: MOBILE 6.2 Files

```
*****
* MOBILE6.2.03 (24-Sep-2003) *
* Input file: GPATS2K2.IN (file 1, run 1). *
*****
```

```
M616 Comment:
      User has supplied post-1999 sulfur levels.
M603 Comment:
      User has disabled the calculation of REFUELING emissions.
```

```
* #####
* GPATS 2002 BAESLINE - Freeway 52.47 MPH
* File 1, Run 1, Scenario 1.
* #####
```

```
M582 Warning:
      The user supplied freeway average speed of 52.5
      will be used for all hours of the day. 100% of VMT
      has been assigned to a fixed combination of freeways
      and freeway ramps for all hours of the day and all
      vehicle types.
```

```
M 48 Warning:
      there are no sales for vehicle class HDGV8b
```

```
      Calendar Year: 2002
      Month: July
      Altitude: Low
      Minimum Temperature: 72.0 (F)
      Maximum Temperature: 92.0 (F)
      Absolute Humidity: 75. grains/lb
      Nominal Fuel RVP: 9.0 psi
      Weathered RVP: 8.6 psi
      Fuel Sulfur Content: 279. ppm
```

```
      Exhaust I/M Program: No
      Evap I/M Program: No
      ATP Program: No
      Reformulated Gas: No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	1.318	1.438	2.313	1.662	1.444	0.586	0.785	0.462	2.18	1.398
Composite NOX :	1.218	1.431	1.776	1.519	5.518	1.746	1.803	18.789	1.32	2.964
-----										

```
* #####
* GPATS 2002 BAESLINE - Expressway 51.02 MPH
* File 1, Run 1, Scenario 2.
* #####
```

M582 Warning:

The user supplied freeway average speed of 51.0 will be used for all hours of the day. 100% of VMT has been assigned to a fixed combination of freeways and freeway ramps for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2002  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 279. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	1.328	1.449	2.331	1.675	1.463	0.590	0.790	0.468	2.18	1.409
Composite NOX :	1.213	1.424	1.769	1.512	5.462	1.682	1.736	18.270	1.28	2.913
-----										

```
* #####
* GPATS 2002 BAESLINE - Principal Art Divided 43.38 MPH
* File 1, Run 1, Scenario 3.
* #####
```

M583 Warning:

The user supplied arterial average speed of 43.4 will be used for all hours of the day. 100% of VMT has been assigned to the arterial/collector roadway type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2002

Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 279. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VTM Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	1.382	1.499	2.418	1.734	1.600	0.619	0.829	0.517	2.20	1.468
Composite NOX :	1.181	1.376	1.722	1.465	5.162	1.437	1.483	13.247	1.16	2.448
-----										

\* #  
 \* GPATS 2002 BASELINE - PRINCIPAL ART UNDIVIDED 38.55 MPH  
 \* File 1, Run 1, Scenario 4.  
 \* #  
 M583 Warning:  
 The user supplied arterial average speed of 38.5  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.  
 M 48 Warning:  
 there are no sales for vehicle class HDGV8b

Calendar Year: 2002  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 279. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
---------------	------	--------	--------	------	------	------	------	------	----	---------

GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000

---

Composite Emission Factors (g/mi):

Composite VOC :	1.429	1.538	2.479	1.779	1.731	0.649	0.869	0.566	2.26	1.517
Composite NOX :	1.170	1.357	1.705	1.446	4.981	1.370	1.413	12.708	1.13	2.384

---

\* #####  
 \* GPATS 2002 BAESLINE - MINOR ARTERIAL DIVIDED 27.2 MPH  
 \* File 1, Run 1, Scenario 5.  
 \* #####

M583 Warning:

The user supplied arterial average speed of 27.2  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2002  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 279. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000

---

Composite Emission Factors (g/mi):

Composite VOC :	1.618	1.708	2.752	1.975	2.280	0.767	1.025	0.760	2.53	1.723
Composite NOX :	1.234	1.400	1.757	1.491	4.557	1.387	1.431	12.845	1.04	2.427

---

\* #####  
 \* GPATS 2002 BAESLINE - MINOR ARTERIAL UNDIVIDED 35.68 MPH  
 \* File 1, Run 1, Scenario 6.  
 \* #####

M583 Warning:

The user supplied arterial average speed of 35.7

will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2002  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 279. ppm

Exhaust I/M Program: No  
Evap I/M Program: No  
ATP Program: No  
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	1.461	1.564	2.519	1.809	1.831	0.672	0.899	0.603	2.31	1.551
Composite NOX :	1.166	1.349	1.698	1.438	4.871	1.350	1.393	12.549	1.12	2.361
-----										

\* #  
\* GPATS 2002 BAESLINE - COLLECTOR 34.09 MPH  
\* File 1, Run 1, Scenario 7.  
\* #

M583 Warning:

The user supplied arterial average speed of 34.1  
will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2002  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 279. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	1.484	1.585	2.553	1.832	1.895	0.686	0.918	0.627	2.35	1.576
Composite NOX :	1.171	1.351	1.700	1.440	4.812	1.347	1.390	12.523	1.11	2.360
-----										

\* #  
 \* GPATS 2002 BASELINE - LOCAL 15.9 MPH  
 \* File 1, Run 1, Scenario 8.  
 \* #

\* Reading Hourly Roadway VMT distribution from the following external  
 \* data file: C:\MOBILE6\RUN\FVMTLOCL.D

Reading User Supplied ROADWAY VMT Factors

M585 Warning:

100% of VMT has been assigned to the local roadway  
 type for all hours of the day for all vehicle types  
 with an average speed of 12.9 mph.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2002  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 279. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.4568	0.3091	0.1063		0.0360	0.0008	0.0017	0.0833	0.0060	1.0000
-----										

Composite Emission Factors (g/mi):										
Composite VOC :	2.440	2.467	3.827	2.815	4.452	1.095	1.461	1.298	3.40	2.577
Composite NOX :	1.203	1.318	1.673	1.409	4.010	1.803	1.862	13.972	0.89	2.453

M616 Comment: User has supplied post-1999 sulfur levels.

M603 Comment: User has disabled the calculation of REFUELING emissions.

```
M582 Warning:
    The user supplied freeway average speed of 49.5
    will be used for all hours of the day. 100% of VMT
    has been assigned to a fixed combination of freeways
    and freeway ramps for all hours of the day and all
    vehicle types.
```

Calendar Year:	2007
Month:	July
Altitude:	Low
Minimum Temperature:	72.0 (F)
Maximum Temperature:	92.0 (F)
Absolute Humidity:	75. grains/lb
Nominal Fuel RVP:	9.0 psi
Weathered RVP:	8.6 psi
Fuel Sulfur Content:	33. ppm

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VTM Distribution:	0.3872	0.3600	0.1237		0.0359	0.0004	0.0019	0.0854	0.0056	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.847	0.881	1.434	1.022	0.908	0.289	0.507	0.327	2.17	0.896
Composite NOX :	0.743	0.936	1.305	1.030	3.614	0.843	1.079	10.312	1.24	1.805



M582 Warning:  
The user supplied freeway average speed  
will be used for all hours of the day.  
has been assigned to a fixed combinatio  
and freeway ramps for all hours of the  
vehicle types.

Calendar Year:	2007
Month:	July
Altitude:	Low
Minimum Temperature:	72.0 (F)
Maximum Temperature:	92.0 (F)
Absolute Humidity:	75. grains/lb
Nominal Fuel RVP:	9.0 psi
Weathered RVP:	8.6 psi
Fuel Sulfur Content:	33. ppm

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						

Composite Emission Factors (g/mi):

```
* #####
* GPATS 2007 - Principal Art Divided 43.23 MPH
* File 1, Run 1, Scenario 3.
* #####
```

Calendar Year: 2007

Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VTM Distribution:	0.3872	0.3600	0.1237		0.0359	0.0004	0.0019	0.0854	0.0056	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.883	0.909	1.484	1.056	0.978	0.302	0.531	0.357	2.20	0.932
Composite NOX :	0.726	0.909	1.276	1.003	3.450	0.750	0.959	8.248	1.16	1.603
-----										

\* #  
 \* GPATS 2007 - PRINCIPAL ART UNDIVIDED 38.70 MPH  
 \* File 1, Run 1, Scenario 4.  
 \* #

M583 Warning:  
 The user supplied arterial average speed of 38.7  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.  
 M 48 Warning:  
 there are no sales for vehicle class HDGV8b

Calendar Year: 2007  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
---------------	------	--------	--------	------	------	------	------	------	----	---------

GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.3872	0.3600	0.1237		0.0359	0.0004	0.0019	0.0854	0.0056	1.0000

---

Composite Emission Factors (g/mi):

Composite VOC :	0.915	0.932	1.523	1.083	1.047	0.316	0.557	0.388	2.25	0.963
Composite NOX :	0.720	0.897	1.263	0.991	3.336	0.717	0.916	7.884	1.14	1.559

---

\* #####  
 \* GPATS 2007 - MINOR ARTERIAL DIVIDED 32.62 MPH  
 \* File 1, Run 1, Scenario 5.  
 \* #####

M583 Warning:  
 The user supplied arterial average speed of 32.6  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.

M 48 Warning:  
 there are no sales for vehicle class HDGV8b

Calendar Year: 2007  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.3872	0.3600	0.1237		0.0359	0.0004	0.0019	0.0854	0.0056	1.0000

---

Composite Emission Factors (g/mi):

Composite VOC :	0.969	0.975	1.597	1.134	1.176	0.343	0.606	0.448	2.37	1.019
Composite NOX :	0.726	0.897	1.265	0.991	3.184	0.706	0.902	7.766	1.09	1.546

---

\* #####  
 \* MINOR ARTERIAL UNDIVIDED 33.96 MPH  
 \* File 1, Run 1, Scenario 6.  
 \* #####

M583 Warning:  
 The user supplied arterial average speed of 34.0

will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2007  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No  
Evap I/M Program: No  
ATP Program: No  
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.3872	0.3600	0.1237		0.0359	0.0004	0.0019	0.0854	0.0056	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.955	0.962	1.576	1.119	1.143	0.336	0.594	0.433	2.34	1.003
Composite NOX :	0.720	0.893	1.260	0.987	3.216	0.704	0.900	7.749	1.11	1.541
-----										

\* #  
\* GPATS 2007 - COLLECTOR 32.41 MPH  
\* File 1, Run 1, Scenario 7.  
\* #

M583 Warning:

The user supplied arterial average speed of 32.4  
will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2007  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3872	0.3600	0.1237		0.0359	0.0004	0.0019	0.0854	0.0056	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.972	0.977	1.601	1.136	1.182	0.344	0.608	0.451	2.38	1.021
Composite NOX :	0.727	0.897	1.266	0.992	3.179	0.706	0.902	7.768	1.09	1.547
-----										

\* #  
 \* GPATS 2007 - LOCAL 15.88 MPH  
 \* File 1, Run 1, Scenario 8.  
 \* #

\* Reading Hourly Roadway VMT distribution from the following external  
 \* data file: C:\MOBILE6\RUN\FVMTLOCL.D

Reading User Supplied ROADWAY VMT Factors

M585 Warning:

100% of VMT has been assigned to the local roadway  
 type for all hours of the day for all vehicle types  
 with an average speed of 12.9 mph.

M 48 Warning:

there are no sales for vehicle class HDGV8b

Calendar Year: 2007  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3872	0.3600	0.1237		0.0359	0.0004	0.0019	0.0854	0.0056	1.0000
-----										





M 48 Warning:  
 there are no sales for vehicle class HDGV8b  
 M 48 Warning:  
 there are no sales for vehicle class LDDT12

Calendar Year: 2025  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.303	0.349	0.531	0.396	0.255	0.043	0.136	0.204	2.24	0.357
Composite NOX :	0.227	0.320	0.541	0.377	0.340	0.027	0.153	0.783	1.13	0.373
-----										

\* #  
 \* GPATS 2025 NO-BUILD - PRINCIPAL ART UNDIVIDED 34.23 MPH  
 \* File 1, Run 1, Scenario 4.  
 \* #

M583 Warning:  
 The user supplied arterial average speed of 34.2  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.

M 48 Warning:  
 there are no sales for vehicle class HDGV8b  
 M 48 Warning:  
 there are no sales for vehicle class LDDT12

Calendar Year: 2025  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi



Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No

Evap I/M Program: No

ATP Program: No

Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000

---

Composite Emission Factors (g/mi):

Composite VOC :	0.318	0.359	0.546	0.407	0.280	0.046	0.145	0.225	2.32	0.371
Composite NOX :	0.228	0.318	0.538	0.375	0.329	0.026	0.151	0.769	1.11	0.370

---

\* #####

\* GPATS 2025 NO-BUILD - MINOR ARTERIAL DIVIDED 28.63 MPH

\* File 1, Run 1, Scenario 5.

\* #####

M583 Warning:

The user supplied arterial average speed of 28.6  
will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

M 48 Warning:

there are no sales for vehicle class LDDT12

Calendar Year: 2025

Month: July

Altitude: Low

Minimum Temperature: 72.0 (F)

Maximum Temperature: 92.0 (F)

Absolute Humidity: 75. grains/lb

Nominal Fuel RVP: 9.0 psi

Weathered RVP: 8.6 psi

Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No

Evap I/M Program: No

ATP Program: No

Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000

---

Composite Emission Factors (g/mi):

Composite VOC :	0.344	0.381	0.579	0.431	0.322	0.051	0.159	0.262	2.47	0.398
Composite NOX :	0.238	0.327	0.551	0.384	0.314	0.027	0.154	0.784	1.06	0.379

\* #####  
 \* GPATS 2025 NO-BUILD - MINOR ARTERIAL UNDIVIDED 26.91 MPH  
 \* File 1, Run 1, Scenario 6.  
 \* #####  
 M583 Warning:

The user supplied arterial average speed of 26.9  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.

M 48 Warning:  
 there are no sales for vehicle class HDGV8b  
 M 48 Warning:  
 there are no sales for vehicle class LDDT12

Calendar Year: 2025  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000

-----

Composite Emission Factors (g/mi):

Composite VOC :	0.353	0.389	0.590	0.440	0.338	0.053	0.165	0.276	2.52	0.408
Composite NOX :	0.242	0.331	0.558	0.389	0.310	0.027	0.156	0.795	1.04	0.384

-----

\* #####  
 \* GPATS 2025 NO-BUILD - COLLECTOR 25.32 MPH  
 \* File 1, Run 1, Scenario 7.  
 \* #####  
 M583 Warning:

The user supplied arterial average speed of 25.3  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.



Exhaust I/M Program:	No
Evap I/M Program:	No
ATP Program:	No
Reformulated Gas:	No

```
*****
* MOBILE6.2.03 (24-Sep-2003) *
* Input file: GPTS2025.IN (file 1, run 1). *
*****
M616 Comment:
      User has supplied post-1999 sulfur levels.
M603 Comment:
      User has disabled the calculation of REFUELING emissions.
```

```
M582 Warning:
    The user supplied freeway average speed of 40.4
    will be used for all hours of the day. 100% of VMT
    has been assigned to a fixed combination of freeways
    and freeway ramps for all hours of the day and all
    vehicle types.

M 48 Warning:
    there are no sales for vehicle class HDGV8b

M 48 Warning:
    there are no sales for vehicle class LDDT12
```

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Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VMT Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.299	0.347	0.528	0.393	0.246	0.042	0.133	0.196	2.21	0.353
Composite NOX :	0.229	0.324	0.547	0.381	0.345	0.027	0.156	0.828	1.14	0.380
-----										

\* #####  
 \* GRATS 2025 - Expressway 45.33 MPH  
 \* File 1, Run 1, Scenario 2.  
 \* #####

M582 Warning:

The user supplied freeway average speed of 45.3  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to a fixed combination of freeways  
 and freeway ramps for all hours of the day and all  
 vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

M 48 Warning:

there are no sales for vehicle class LDDT12

Calendar Year: 2025  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

VTM Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
-------------------	--------	--------	--------	--	--------	--------	--------	--------	--------	--------

---

Composite Emission Factors (g/mi):

Composite VOC :	0.285	0.339	0.515	0.384	0.226	0.040	0.127	0.181	2.17	0.341
Composite NOX :	0.231	0.330	0.554	0.387	0.357	0.029	0.166	0.884	1.18	0.390

---

\* #####  
 \* GRATS 2025 - Principal Art Divided 38.45 MPH  
 \* File 1, Run 1, Scenario 3.  
 \* #####

M583 Warning:  
 The user supplied arterial average speed of 38.5  
 will be used for all hours of the day. 100% of VMT  
 has been assigned to the arterial/collector roadway  
 type for all hours of the day and all vehicle types.

M 48 Warning:  
 there are no sales for vehicle class HDGV8b

M 48 Warning:  
 there are no sales for vehicle class LDDT12

Calendar Year: 2025  
 Month: July  
 Altitude: Low  
 Minimum Temperature: 72.0 (F)  
 Maximum Temperature: 92.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Nominal Fuel RVP: 9.0 psi  
 Weathered RVP: 8.6 psi  
 Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VTM Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000

---

Composite Emission Factors (g/mi):

Composite VOC :	0.304	0.350	0.532	0.396	0.256	0.044	0.137	0.204	2.24	0.357
Composite NOX :	0.227	0.320	0.541	0.377	0.340	0.027	0.153	0.783	1.13	0.372

---

\* #####  
 \* GRATS 2025 - PRINCIPAL ART UNDIVIDED 32.94 MPH  
 \* File 1, Run 1, Scenario 4.  
 \* #####

M583 Warning:  
 The user supplied arterial average speed of 32.9

will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

M 48 Warning:

there are no sales for vehicle class LDDT12

Calendar Year: 2025  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
Evap I/M Program: No  
ATP Program: No  
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.323	0.364	0.553	0.412	0.288	0.047	0.148	0.233	2.35	0.376
Composite NOX :	0.229	0.320	0.541	0.376	0.326	0.026	0.151	0.771	1.10	0.371
-----										

\* #

\* GRATS 2025 - MINOR ARTERIAL DIVIDED 29.22 MPH

\* File 1, Run 1, Scenario 5.

\* #

M583 Warning:

The user supplied arterial average speed of 29.2  
will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

M 48 Warning:

there are no sales for vehicle class LDDT12

Calendar Year: 2025  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)

Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
Evap I/M Program: No  
ATP Program: No  
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VTM Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.341	0.378	0.575	0.429	0.317	0.051	0.158	0.258	2.45	0.395
Composite NOX :	0.236	0.325	0.549	0.382	0.316	0.026	0.153	0.780	1.06	0.377
-----										

\* #  
\* GRATS 2025 - MINOR ARTERIAL UNDIVIDED 27.14 MPH  
\* File 1, Run 1, Scenario 6.  
\* #

M583 Warning:  
The user supplied arterial average speed of 27.1  
will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:  
there are no sales for vehicle class HDGV8b

M 48 Warning:  
there are no sales for vehicle class LDDT12

Calendar Year: 2025  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
Evap I/M Program: No  
ATP Program: No  
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



VTM Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
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---

Composite Emission Factors (g/mi):

Composite VOC :	0.352	0.388	0.589	0.439	0.335	0.053	0.164	0.274	2.51	0.407
Composite NOX :	0.242	0.331	0.557	0.389	0.311	0.027	0.155	0.794	1.04	0.383

---

\* #####

\* GRATS 2025 - COLLECTOR 26.00 MPH

\* File 1, Run 1, Scenario 7.

\* #####

M583 Warning:

The user supplied arterial average speed of 26.0  
will be used for all hours of the day. 100% of VMT  
has been assigned to the arterial/collector roadway  
type for all hours of the day and all vehicle types.

M 48 Warning:

there are no sales for vehicle class HDGV8b

M 48 Warning:

there are no sales for vehicle class LDDT12

Calendar Year: 2025  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
Evap I/M Program: No  
ATP Program: No  
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						

---

VTM Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
-------------------	--------	--------	--------	--	--------	--------	--------	--------	--------	--------

---

Composite Emission Factors (g/mi):

Composite VOC :	0.359	0.394	0.597	0.446	0.347	0.055	0.168	0.284	2.55	0.414
Composite NOX :	0.245	0.334	0.563	0.392	0.308	0.027	0.157	0.802	1.03	0.387

---

\* #####

\* GRATS 2025 - LOCAL 15.72 MPH

\* File 1, Run 1, Scenario 8.

\* #####

\* Reading Hourly Roadway VMT distribution from the following external

\* data file: C:\MOBILE6\RUN\FVMTLOCL.D

Reading User Supplied ROADWAY VMT Factors

M585 Warning:

100% of VMT has been assigned to the local roadway  
type for all hours of the day for all vehicle types  
with an average speed of 12.9 mph.

M 48 Warning:

there are no sales for vehicle class HDGV8b

M 48 Warning:

there are no sales for vehicle class LDDT12

Calendar Year: 2025  
Month: July  
Altitude: Low  
Minimum Temperature: 72.0 (F)  
Maximum Temperature: 92.0 (F)  
Absolute Humidity: 75. grains/lb  
Nominal Fuel RVP: 9.0 psi  
Weathered RVP: 8.6 psi  
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No  
Evap I/M Program: No  
ATP Program: No  
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.2788	0.4388	0.1507		0.0365	0.0003	0.0022	0.0876	0.0051	1.0000
-----										
Composite Emission Factors (g/mi):										
Composite VOC :	0.569	0.584	0.851	0.653	0.666	0.080	0.241	0.467	3.38	0.626
Composite NOX :	0.253	0.326	0.536	0.380	0.274	0.035	0.202	1.021	0.89	0.399
-----										